Fact Sheets and Information Papers

Management of Waste Dental Amalgam

February 2003

1. BACKGROUND Waste amalgam consists of old amalgam, and pieces of fresh amalgam from procedures used to replace deteriorated fillings. This waste stream is not classified as an infectious waste. Classification of waste amalgam as a hazardous waste is required only when the waste amalgam stored under a liquid such as photographic fixer.

2. COMPOSITION The proportion of metals in amalgam varies with manufacturers and the specific use in patients. The ratio of metals has also varied over time. In general terms, amalgam is a mixture of several metals as follows: The alloy is silver, tin, and copper. Copper amounts range from 6 to nearly 20 percent. The silver and tin components are in approximate equal proportions to each other so as to make up 100 percent of the alloy. Most currently used alloys use about 12 percent copper. The amalgam itself is an intermetallic compound comprised of equal proportions by weight of the alloy and mercury; this fresh compound is mixed in a special dental shaker.

When the dentist compresses the fresh amalgam into the prepared cavity, small pieces of excess amalgam fall into the mouth cavity during compaction of the amalgam. More amalgam drops into the mouth both during the removal of old deteriorated fillings and when the dentist is putting the final shape on the new filling. These bits and pieces of old and new amalgam are what the suction tubes in dental operatories pick up and keep in traps.

3. TESTS The Center has researched the sludges from sewage treatment plants for leachable levels of the EPA toxic heavy metals (which include mercury and silver). All the data are below the regulatory thresholds for the Toxic Characteristic Leachate Procedure (TCLP) test [Title 40 Code of Federal Regulations (CFR), Part 261.24]. TCLP testing has been done by this Center on a number of different amalgam samples under different scenarios. We found that the samples did not always fall below the regulatory thresholds stated in 40 CFR 261.24. Due to the variability of this waste stream, dry amalgam should be turned in to the Defense Reutilization and Marketing Office (DRMO) as a recyclable scrap metal.

4. DISPOSAL At routine intervals, the traps need to be cleaned out. The amalgam solids found in the traps along with any excess amalgam, should be collected and turned in for recycling. Storage and shipment of the scrap for recycling would be identical to methods dental clinics currently use for reclamation of unused amalgam. Due to the variability of the waste stream, the Defense Reutilization and Marketing Office (DRMO) will accept amalgam for recycling as a recyclable scrap metal only if it is stored dry. Storage of waste amalgam under a liquid will require disposal of the amalgam as a hazardous waste. If the DRMO cannot find a recycler to take the amalgam, it will be sent out as a hazardous waste.

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